SOV/1877

PHASE I BOOK EXPLOITATION

25(7)

Tambovtsev, Sergey Pavlovich, Candidate of Technical Sciences (Deceased

Novosti instrumental'noy tekhniki (New Features in Tool Making) Moscow, Mashgiz, 1959. 80 p. 5,000 copies printed.

Ed.: M. T. Galey, Candidate of Technical Sciences; Tech. Ed.: G. V. Smirnova; Managing Ed. for Literature on Metal Working and Tool Making (Mashgiz): R. D. Beyzel'man, Engineer.

PURPOSE: This booklet is intended for qualified workers in the tool-making industry and in tool shops of machine-building plants.

COVERAGE: The author deals with recent achievements in the use of metal-cutting tools. He describes improvements and the use of tools, claimed to be new, which help to increase labor productivi and improve production in metal cutting. In connection with the introduction of many supposedly new materials for machine-buildi the author discusses cutting methods which he says are little kr in the industry. No personalities are mentioned. There are 18 references.

Card 1/3

New Features in Tool Making

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AVAILABLE: Library of Congress

GO/dfh
7-23-59

Card 3/3

TAMBOVTSEV, Sergey Pavlovich, kand.tekhn.nauk [deceased]; GALEY, M.T., kand.tekhn.nauk, red.; SMIRNOVA, G.V., tekhn.red.

[Developments in metal-cutting tools] Novosti instrumental'noi tekhniki. Pod red. M.T.Galeia. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry, 1959. 78 p. (MIRA 12:4)
(Metal-cutting tools)

TAMBOVTSEV, S.P.

Use of high-speed microcinematography for the investigation of metal cutting processes. Usp.nauch.fot. 6:174 '59. (MIRA 13:6)
(Microcinematography)
(Metal cutting)

TAMBOVTSEV, S.S.

Construction of end-milling cutters whose blades are sharpened outside the machine body. Stan.i instr. vol.24 no.9:15-17 S '53. (MLRA 6:10)
(Milling machines)

TAMBOVTSEV, S. S.

Tambovtsev, S. S.

"Investigation and design of hard-alloy milling machines." Min Higher Education USSR. Moscow Machine Tool and Tool Inst imeni I. V. Stalin. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Sciences.)

Knizhnaya letopis'
No. 15, 1956. Moscow.

TAMBOVTSEV, S.S.

HAMP. Frantisek, kavaler ordena Respubliki, laureat gosudarstvennoy premii; DAN'KO, Yu.T., inzhener [translator]; AKIMOV, A.V., kandidat tekhnicheskikh nauk, nauchnyy redaktor; TAMBOVTSEV, S.S., kandidat tekhnicheskikh nauk, nauchnyy redaktor; SHLEPINA, M.M., redaktor; RAKOV, S.I., tekhnicheskiy redaktor

[Grinding shaped parts; improved methods of grinding precision shapes. Abridged translation from the Czech] Shlifovanie fasonnykh detalei; usovershenstvovannye proizovdstvennye metody shlifovaniia tochnykh profilei. Sokrashchennyi perevod s cheshskogo IU.T.Dan'ko. [Moskva] Izd-vo VTsSPS Profizdat, 1956. 164 p.
(Grinding and polishing) (MIRA 10:3)

LARIN, M.N., doktor tekhn.nauk, prof.; TSYGANOVA, M.P., inzh.; TAMBOVTSEV, S.S., kand. tekhn. nauk; MITYAKOV, A.V., inzh.; PETROSYAN, L.K., kand. tekhn. nauk; CHERNOUSENKO, A.P., inzh.; BUDNIKOV, N.Ye., inzh.; MARTYNOV, A.D., kand. tekhn. nauk; IVANOVA, N.A., red. izd-va; GORDEYEVA, L.P., tekhn. red.

[High-production designs of form cutters and their efficient use] Vysokoproizvoditel'nye konstruktsii fasonnykh frez i ikh ratsional'naia ekspluatatsiia. Pod red. M.N.Larina. Moskva, Mashgiz, 1961. 174 p. (MIRA 14:12)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut. 2. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut, Moscow (for all except Ivanova, Gordeyeva)
(Metal-cutting tools)

GRIGOR'YEV, S.P., slesar'-lekal'shchik; RECHMENSKIY, I.N., kand. tekhn. nauk, retsenzent; TAMBOVTSEV, S.S., kand. tekhn. nauk, red.

[Practice of bench and tool work] Praktika slesarno-instrumental'nykh rabot. Moskva, Mashinostroenie, 1964. 172 p. (MIRA 18:1)

SHMEL'KOV, V.I.; SHCHEDROVITSKIY, Ya.S.; KADARMETOV, Kh.N.; BRIKOVA, O.V.;
SHIRYAYEV, Yu.S.; AGARKOVA, N.A.; KRAVCHINSKIY, R.V.; TAMBOVTSEV, V.A.

Material and power balance in melting carbon ferrochromium in a large furnace. Stal' 24 no.12:1094-1096 D '64.
(MIRA 18:2)

TAMBOVTSEV, YE.P.

MOROZOV, Ye.M. (Moskva); POPOV, Yu.A. (Moskva); TAMBOVTSEV, Ye.P. (Moskva)

Relation between strains and deformations in media with various cohesions. Izv.AN SSSR.Otd.tekh.nauk no.2:123-124 F '57.
(MLRA 10:5)

(Deformations (Mechanics))

ACC NR: AP6012862

SOURCE CODE: UR/0240/66/000/004/0103/0105

AUTHOR: Pushkina, N. N.; Rumyantsev, G. I.; Tambovtseva, A. M.

ORG: Moscow Scientific-Research Institute of Hygiene im. F. F. Erisman (Moskovskiy nauchno-issledovatel'skiy institut gigiyeny)

TITLE: Experimental studies on the effect of general vibration on the vitamin supply of the body

SOURCE: Gigiyena i sanitariya, no. 4, 1966, 103-105

TOPIC TAGS: vitamin, biologic metabolism, biologic vibration effect, dog, rabbit, medical experiment, human physiology

ABSTRACT: The present authors discovered earlier that there is a reduced concentration of vitamins C, B_1, and B_2 in personnel exposed to total body vibration while working in reinforced-concrete plants. In order to confirm the results of the earlier work and to obtain material for a hygienic evaluation of total body vibration the authors performed 10 series of tests on rabbits and dogs. Vibration with the following parameters was studied: frequency of 20 cps with amplitudes of 50, 200, and 400 microns; 50 cps and 15, 50, 200, and 750 microns; and 75 cps and 15, 20, and 200 microns. The animals were subjected to vibration for 4 hr daily for 30—60 days. Vitamin levels and other biochemical indices were studied.

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UDC: 612.015.7.014.45-08

L 39511-66

ACC NR: AP6012862

Table 1. Urinary excretion of vitamins in rabbits subjected to general vibration

Vitamin	Control group	[illegible]	After vibration (Group 2)	t_1P_1	t_2P_2
	[illegible]				
	[illegible], 7 cps				
Ascorbic Acid (in mg)	1,04±[illegible]	[illegible]	0,57±0,03	5,3 <0,001	3,2 <0,02
Thiamine (in μg)	72,6±21,7	98,0±20,5	7,3±1,9	2,9 <0,02	2,9 <0,02
Pyruvic Acid (in mg)	2,36±0,28	2,18±0,14	3,17±0,16	2,5 <0,05	1,4 >0,05
Riboflavin (in μg)	171,6±18,7	181,0±25,5	119,6±6,4	2,6 <0,05	2,3 =0,05
N'-MNA (in mg)	189,1±71,3	132,5±52,1	19,8±4,1	2,2 >0,05	2,1 >0,05
	[illegible] μ, 75 cps				
Ascorbic Acid (in mg)	0,97±0,11	0,95±0,18	0,59±0,01	3,2 <0,02	1,9 >0,05
Thiamine (in μg)	76,2±16,8	93,0±30,5	39,3±18,3	1,8 >0,05	1,6 >0,05
Pyruvic Acid (in mg)	1,25±[illegible]	1,25±[illegible]	1,85±0,29	2,1 >0,05	2,1 >0,05
Riboflavin (in μg)	171,6±18,7	242,0±25,4	213,0±15,9	1,7 >0,05	0,9 >0,05
N'-MNA (in mg)	220,7±55,7	268,9±120,0	192,3±53,1	0,2 >0,05	0,5 >0,05
	15 μ, 75 cps				
Ascorbic Acid (in mg)	0,51±0,05	0,56±0,06	0,41±0,02	1,3 >0,05	1,3 >0,05
Thiamine (in μg)	71,1±23,2	99,0±21,[illegible]	51,6±21,4	0,5 >0,05	1,2 >0,05
Pyruvic Acid (in mg)	0,97±0,01	0,91±0,01	1,15±0,07	2,2 >0,05	2,7 <0,05
Riboflavin (in μg)	172,5±18,6	181,2±31,2	150,8±14,1	0,9 >0,05	0,9 >0,05
N'-MNA (in mg)	190,8±72,6	251,7±78,6	236,6±62,0	0,5 >0,05	0,2 >0,05

Note: t_1 is the criterion in comparing Group 2 with the control group; t_2 is the criterion in comparing Group 2 with Group 1.

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ACC NR: AP6012862

The vitamin supply was determined from the content of ascorbic acid in the blood and the excretion of vitamins in the urine. The results of three series of experiments in which rabbits were exposed to vibration of various frequencies for 4 hr daily for 30 days are given in Table 1. The table shows that there is a direct relationship between the vitamin supply in the body and the vibration parameters. Tests with 6 dogs produced similar results. The observed changes in vitamin metabolism accompanying exposure to total body vibration indicate disruption of the metabolism of ascorbic acid, thiamine, riboflavin, and N'-MNA. Orig. art. has: 2 tables. [08]

SUB CODE: 06/ SUBM DATE: 19Feb65/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS: 5005

Card 3/3 vmb

NAVROTSKAYA, A.M.; DROBOTOVA, Ye.L.; TAMBOVTSEVA, A.R.; SERGEYEVA, A.F.

Efficient utilization of hops in the brewing industry.
Izv. vys. ucheb. zav.; pishch. tekh. no.4:80-85 '63.
(MIRA 16:11)

1. Zhigulevskiy pivovarennyy kombinat, issledovatel'skaya laboratoriya.

KRASOVSKIY, B.N.; YANKOVA, M.F.; TAMBOVTSEVA, A.V.

Causes of some endocrine diseases; adrenal and thyroid glands.
Vest. AMN SSSR 20 no.3:25-37 '65. (MIRA 18:7)

1. Institut pediatrii AMN SSSR, Moskva.

MAYEGOV, I.N.; TAMBOVTSEVA, L.N.

Quick method for producing small-size X-ray photographs and their use in constructing pole figures. Zav. lab. 30 no.9:1100-1102 '64.
(MIRA 18:3)

1. Volgogradskiy politekhnicheskiy institut.

L 04979-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JH

ACC NR: AR6031073 (A) SOURCE CODE: UR/0277/66/000/007/0014/0015

AUTHOR: Gelunova, Z. M.; Pashkov, P. O.; Tambovtseva, L. N. 32

TITLE: Effect of prestraining on the strength of age hardenable alloys

SOURCE: Ref. zh. Mashinostr mat konstr i raschet detal mash. Gidropr, Abs. 7.48.100

REF SOURCE: Sb. Materialy Nauchn. konferentsii. Sovnarkhoz Nizhne-Volzhsk. ekon. r-na. Volgogradsk. politekhn. in-t. T. 1. Volgograd, 1965, 343-346

TOPIC TAGS: aluminum alloy, beryllium alloy, beryllium copper, copper, metal aging, metal hardening, prestrained alloy aging, age hardenable alloy, aluminum alloy aging, beryllium copper aging, metal prestraining/D16 aluminum alloy, B2 beryllium copper

ABSTRACT: The hardness of D16 Duralumin and B2 beryllium copper, naturally aged after conventional upsetting with a reduction of up to 30% or after deformation of freshly solution-annealed specimens by a shock wave with a pressure of 200 kbar prior to the natural aging, has been investigated. If aging at room temperature increases the hardness of undeformed Duralumin to HV145, then prestraining by conventional upsetting or shock wave increases its hardness to HV170—175. The maximum increase is achieved after maximum deformation. Identical results were obtained for beryllium copper (aging done at 340 C and 300 C). A peculiarity of bronze is that its hardness decreases slightly when the time of exposure to the aging temperature exceeds 2 hr., which can be explained by the relaxation of the material. The investigation showed that significant additional strengthening of age-hardenable alloys

Card 1/2

L 04979-67

ACC NR: AR6031073

can be achieved by means of work hardening in freshly hardened condition prior to aging. [TD]

SUB CODE: 11, 13/ SUBM DATE: none

aluminum alloy

27

Card 2/2

L 02199-67 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW
ACC NR: AR6031070 SOURCE CODE: UR/0277/66/000/007/0011/0011/

AUTHOR: Gelunova, Z. M.; Pashkov, P. O.; Tambovtseva, L. N.

TITLE: Characteristics of the shock wave effect on medium carbon steel with a martensite structure

SOURCE: Ref. zh. Mashinostr mat konstr i raschet detal mash. Gidropr. Abs. 7.48.70

REF SOURCE: Sb. Materialy Nauchn. konferentsii. Sovnarkhoz Nizhni-Volzhsk. ekon. r-na. Volgogradsk. politekhn. in-t. T. I. Volgograd, 1965, 275-279

TOPIC TAGS: martensite, carbon steel, shock wave, steel structure, austenitic steel

ABSTRACT: Studies were made of the characteristics of the effect of a powerful shock wave (200—300 kbar) on the structure and hardness of samples of 30KhGSA, 40Kh, and 65G steels hardened for low-tempered martensite. Explosive hardening has practically no effect on martensitic steel, which becomes even softer when subjected to a powerful compression shock wave. Its low capacity for hardening leads to rapid failure even under stresses by soft shock waves. A bibliography of 2 reference items is given. [Translation of abstract]

SUB CODE: 13/

Card 1/1

UDC: 669.14.018:539.4:539.89

DOTSENKO, I.P.; TAMBOVTSEVA, M.S.

Reducing sulfuric acid consumption. Gidroliz. i lesokhim. prom. 17 no.3:21-22 '64. (MIRA 17:9)

1. Tulunskiy gidrolyznyy zavod.

TAMBOVTSEVA,S.S.

DAN'KO, Yu.T., inzh.[translator]; AKIMOV, A.V., kand.tekhn.nauk, red.; TAMBOVTSEVA, S.S., red.; SHLEPINA, M.M., red.; KIRSANOVA, N.A., tekhn.red.

[Ladislav Hauser's multibit turning tool. Translated from the Czech] Mnogolezviinye tokarnye reztsy konstruktsii Ladislava Gouzara. Perevod s cheshskogo Iu.T.Dan'ko. [Moskva] Izd-vo VTsSPS Profizdat, 1957. 13 p. (MIRA 11:1)

(Cutting tools)

TAMBOVTSEVA, T.P., inzh.

Eight-hour job done in 7 hours. Masl.-zhir.prom. 25 no.8: 36-37 '59. (MIRA 12:12)

1. Kuybyshevskiy parfyumernyy kombinat.
(Kuibyshev--Perfumes)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Ca

10

Alkylation of aromatic compounds in the presence of phosphoric acid. II. Alkylation of phenol and anisole by [redacted] and [redacted] Tsukervanik. J.
[redacted] 830-4(1945); cf. C.A. 40,
Gen. Chem. [redacted] 15,
5707¹.—PhOH and PhOMe were condensed in the pres-
ence of 1.5 mols. 95% H_3PO_4 with *tert*-AmOH at 70-80°,
with iso-PrOH and iso-BuOH at 80-100°, and with
PrOH and BuOH at 100-30° to form 80-95% of the
corresponding *p*-alkyl derivs. and sometimes a small amt.
of the *o*-derivs. Below these temps., reaction did not
occur. During the condensation, primary groups isomer-
ized to secondary, and secondary to tertiary. Isolation of
PO(OBu)O_2Ha from one reaction mixt. indicates that the
reaction goes through the formation of acid esters of H_3PO_4
which are in turn the alkylating agents. With PhOMe
both Pr and iso-Pr alcs. yielded *p*-isopropylanisole, b_{760}
212-14°, d_{20}^{20} 0.9148, n_D^{20} 1.5070, and *o*-isopropylanisole,
b_{760} 198-200°, d_{20}^{20} 0.9540, n_D^{20} 1.5056. Similarly, Pr and
iso-Pr alcs. and phenol yielded the corresponding *p*-iso-Pr
deriv., b_{760} 213-14°, d_{20}^{20} 1.0157, n_D^{20} 1.5202, and *o*-iso-Pr
deriv., crystals, m. 61°. Other compds. prepd. were *p*-
tert-butylanisole, b_{760} 214-15°, d_{20}^{20} 0.9135, n_D^{20} 1.5000, and
p-*tert*-butylphenol, crystals, m. 99° (from iso-BuOH), and
p-*sec*-butylanisole, b_{20} 108-10°, d_{20}^{20} 0.9410, n_D^{20} 1.5050
(from BuOH).
H. M. Leicester

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

TAMBOVTZEVA, V.

"The Alkylation of Aromatic Compounds in the Presence of Phosphoric Acid. II. The Alkylation of Phenol and of Anisole by Alcohols." Tambovtzeva, V. and Tzukervanik, I. (p. 820)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1945, Volume 15, no. 9-10.

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

C-A

10

Alkylation of phenol and anisole by the Friedel-Crafts method. I. P. Tsukervanik and V. D. Tambovtseva. *Bull. univ. Asie centrale* 22, 221-4(in German, 225) (1938).—Alkylation of phenol (I) and anisole (II) has been carried out with BuCl (III), iso-BuCl (IV) and iso-AmCl (V) in the presence of an equimol. amt. of AlCl$_3$. In the case of II, the most favorable conditions were 4 hrs. heating of the mixt. on the water bath, using ligroin as a solvent, whereby a mixt. of *o*- and *p*-alkylanisole is obtained in 70% of the theoretical yield and small amts. of dialkylanisoles. Sapon. of II occurs simultaneously to some extent with the formation of phenol. In the case of I, longer heating to higher temps. is required. The best yield, up to 60% of the theory, is obtained in the absence of a solvent. In addn. to a mixt. of *o*- and *p*-alkylphenols, alkyl ethers of phenol are formed. To 25 g. II, 20 g. V and 100 ml. ligroin, 35 g. AlCl$_3$ is added slowly within 1 hr. and the mixt. heated for 4 hrs. on a boiling water bath. Isoamylanisole (16 g.), b$_{11}$ 120-2°, d$_4^{20}$ 0.9401, n$_D^{20}$ 1.4995, and 3 g. diisoamylanisole, b$_{11}$ 137-40°, d$_4^{20}$ 0.9511, n$_D^{20}$ 1.5112, are formed. II (22 g.), 20 g. III, 35 g. AlCl$_3$, and 100 ml. ligroin when heated for 4 hrs. on a boiling water bath give 21 g. butylanisole from which is isolated *p*-butylanisole, b$_{11}$ 108-10°, d$_4^{20}$ 0.9273, n$_D^{20}$ 1.5020, and 3 g. dibutylanisole, b$_{11}$ 130-7°, d$_4^{20}$ 0.9288, n$_D^{20}$ 1.5105. By heating 60 ml. II with 20 g. IV and 27 g. AlCl$_3$ there is formed 13 g. isobutylanisole, b$_{16}$ 120-7°, d$_4^{20}$ 0.9572, n$_D^{20}$ 1.4960. I (19 g.), 20 g. III and 27 g. AlCl$_3$ on heating for 4 hrs. to 110° give 9 g. butylphenol, from which is isolated the *p*-isomer, b$_{11}$ 120-30°, d$_4^{20}$ 0.9749, n$_D^{20}$ 1.5180, 5 g. I and 4 g. of butylphenol Bu ether, b$_{11}$ 144-7°, d$_4^{20}$ 0.9840, n$_D^{20}$ 1.5000. I (19 g.), 22 g. V and 27 g. AlCl$_3$ heated for 5 hrs. on a boiling water bath give 4 g. isoamylphenol, b$_{11}$ 130-3°, n$_D^{20}$ 1.5202, 10 g. I and 6 g. of isoamylphenol isoamyl ether. When AlCl$_3$ is added with cooling, 55% *tert*-amylphenol, m. 92°, are obtained instead of isoamylphenol. Gertrude Berend

TAMBOVTSEVA V.D.

CH

Alkylation of aromatic compounds in the presence of phosphoric acids. IV. Alkylation of diphenols with aliphatic alcohols. V. D. Tambovtseva. *Trudy Sredneaziat. Gosudarst. Univ.* (Tashkent) 33, 69-73(1952); cf. *C.A.* 41, 732*c*.—Condensation of pyrocatechin (I) and resorcin (II) with iso-BuOH (III) and BuOH (IV) is studied. I or II was mixed with 99% H_3PO_4, ratio 1:3, heated 4 hrs. on a steam bath with stirring, 2 parts III or IV added. The mixt. heated 2 hrs. at 140-60° or 120-40°, resp., cooled, treated with H_2O, and extd. with ether, and the ext. washed with 10-15% alkali and fractionated to give yields of ~70%. Products of I and III b. 260-80°, d_{20} 0.7389, n_D^{20} 1.5014 (benzoate, m. 93-100°; acetate, m. 77-99°); after standing for 3 months the mixt. solidified and m. 106-8°. The product of I and IV b. 270-90° and of II and III b. 280-95°.

Michael Dymicky

SAMIBAYEV, M.Kh., assistent; TAMBOVTSEVA, V.G., assistent

Recuperative period of paralytic poliomyelitis from data of the Clinic for Nervous Diseases at the Samarkand Medical Institute for 1955-1957. Med. zhur. Uzb. no.3:62-64 Mr '60. (MIRA 15:2)

1. Iz kliniki nervnykh bolezney (zav. - dotsent M.I.Gabrielyan) Samarkandskogo gosudarstvennogo meditsinskogo instituta imeni I.P.Pavlova.

(SAMARKAND—POLIOMYELITIS)

GABRIELYAN, M.I.; TAMBOVTSEVA, V.G.

Clinical aspects and pathogenesis of recurrent paralysis of the cerebrocranial nerves. Zhur.nevr.i psikh. 60 no.1:50-52 '60. (MIRA 13:6)

1. Klinika nervnykh bolezney (zav. - dotsent M.I. Gabrielyan) Samarkandskogo meditsinskogo instituta imeni Pavlova.
(CRANIAL NERVES dis.)
(PARALYSIS)

TAMBOVTZEVA, E. S.

Feofilaktov, V. V., and Tambovtzeva, E. S. - "The Synthesis of a-(2, 4-Dichloro-Phenoxy)-Butyric acid." (p. 256)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 2.

POLYAKOVA, A.M.; VERESHCHAGIN, L.F.; SAKHAROVA, A.A.; TAMBOVTSEVA, Ye.S.

Study of the effect of pressure on polycondensation of the methyl ester of glycine. Izv.AN SSSR. Otd.khim.nauk no.1:142-148 Ja-F '54. (MLRA 7:4)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Glycine esters) (Condensation products (Chemistry))

KORSHAK, V.V.; POLYAKOVA, A.M.; TAMBOVTSEVA, Ye.S.

Synthesis and polymerization of p-triethylplumbyl-α-methylstyrene. Vysokom.soed. 1 no.7:1021-1023 Jl '59. (MIRA 12:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Styrene)

Tambovtseva, E. S.

62

Effect of pressure on the reaction of polycondensation of glycine methyl ester. A. M. Polyakova, L. F. Vereshchagin, A. A. Sakharova, and E. S. Tambovtseva (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 142-8; cf. *C.A.* 43, [illegible]403*i*.—$H_2NCH_2CO_2Me$ was subjected to polycondensation by heating 6 hrs. under pressure in a vessel provided with sliding pistons; the material remained under pressure a total of 42 hrs. in each expt. The expts. made at 4500 atm. at 50°, 75°, and 130° showed that the pressure definitely increases the rate of polycondensation and its extent; the polymer obtained at 50° had av. mol. wt. 4368, that at 75° 3855, that at 130° 3234, but the yields were, resp., 10.6, 13, and 18.9%. At atm. pressure the products are polypeptides, insol. in H_2O. The products formed under pressure contain 0.7-0.95% MeO groups; detn. of amino N indicates that diketopiperazine rings are not formed and the products are probably linear.

G. M. Kosolapoff

③

5(3)

AUTHORS: Korshak, V. V., Polyakova, A. M., Tambovtseva, Ye. S.

SOV/62-59-4-31/42

TITLE: Polymerization of p-Triethyl-Stannyl-α-Methyl-Styrene (Polimerizatsiya p-trietilstannil-α-metilstirola)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 4, pp 742-744 (USSR)

ABSTRACT: This is a brief report on the investigation of the polymerization of p-triethyl stannyl-α-methyl styrene by radical mechanism under 6,000 atmospheres pressure. p-Triethyl stannyl-α-methyl styrene was synthesized according to the following scheme:

$$p\text{-}BrC_6COCH_3 \xrightarrow[(C_2H_5)_2O]{CH_3MgJ} p\text{-}BrC_6H_4C(CH_3)_2OH \xrightarrow[Al_2O_3,325^{\circ}]{-H_2O}$$

$$\longrightarrow p\text{-}BrC_6H_4C(CH_3)=CH_2 \xrightarrow[\text{tetrahydrofuran}]{Mg,(C_2H_5)_3SnCl} p\text{-}(C_2H_5)_3SnC_6H_4C(CH_3)=CH_2$$

The yield was ~50 %. Various initiators of the radical type were used in the investigation: azodinitrile of butyric acid (ADN), benzoyl peroxide, and tertiary butyl peroxide. The

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Polymerization of p-Triethyl-Stannyl-α-Methyl-Styrene SOV/62-59-4-31/42

results obtained are shown in the table. The best results were obtained when ADN was used. The thermodynamic curve (Fig) was determined for the samples obtained in the presence of this initiator. The curve of unsaturated methyl styrene obtained under similar conditions is shown in comparison. There are 1 figure, 1 table, and 7 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: August 4, 1958

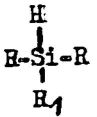
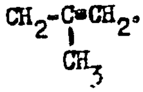
Card 2/2

5(3)

AUTHORS: Korshak, V. V., Polyakova, A. M., Mironov, V. F., SOV/62-59-6-27/36
Petrov, A. D., ~~Tambovtseva, V. S.~~ Ye S

TITLE: On the Polymerization Mechanism of the Alkenylhydride Silanes
(O mekhanizme polimerizatsii alkenilgidridsilanov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1116 - 1125 (USSR)

ABSTRACT: The polymerization capability of monoalkenylhydride silane with the general formula  $R-\overset{H}{\underset{R_1}{Si}}-R$ was investigated. In this formula $R = CH_3$, C_2H_5, Cl, OC_2H_5; $R_1 = CH_2-CH=CH_2$, $OCH_2-CH=CH_2$ and  $CH_2-\underset{CH_3}{C}=CH_2$. The peroxide of the tertiary buthyl, and platinum on coal served as polymerizers. Like in the case of other investigations (Refs 2,3), polymers of the general formula $(CH_3)_3Si(CH_2)_nSi(CH_3)_3$ with n=1,2,3 (I) n=1 (II) n=2 (III) n=3 were found. The structure of the polymers obtained was determined by means of the infrared spectrum.

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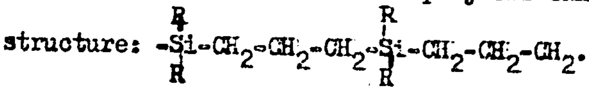
The spectra were compared with the spectrum of the polymer produced from $(CH_3)_2H.SiCH_2-CH=CH_2$ by heating with platinum on coal (IV). L. A. Leytes and V. N. Smorchkov plotted and interpreted the spectra. The investigations of the infrared spectra showed that the allyldialkyl (aryl) silanes polymerize in a different way under formation of differently structured polymers in dependence on the polymerizer. In the presence of the buthyl peroxide and at a pressure of 6000 atmospheres a macro molecule (A) was formed, in which the S-H bond is not split up. This conclusion is made because of the presence of the band (2100 cm^{-1}) characteristic of the S-H group, which is also to be found in the spectrum of the initial monomer and in the spectrum (IV). The other form of polymers (B) is produced in the presence on platinum on coal. They contain the band weakly mentioned either in a weak form or not at all, while the bands in the range of from 1050-1150 cm^{-1} are clearly determined. These polymers exhibit the following structure:



$-\overset{R}{\underset{R}{Si}}-CH_2-CH_2-CH_2-\overset{R}{\underset{R}{Si}}-CH_2-CH_2-CH_2.$

The polymers obtained are differently consistent substances, oily to solid, in dependence on the

On the Polymerization Mechanism of the Alkenylhydride Silanes SOV/62-59-6-27/36

character of the radicals on the silicon atom. The data concerning the different polymers are given in table 1. In the experimental part the syntheses of the single polymers from the monomers concerning are described. Table 3 gives the physical constants of the initial monomers and figures 1-16 show the infrared spectra of the different polymers. There are 16 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences, USSR) and Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: September 3, 1957

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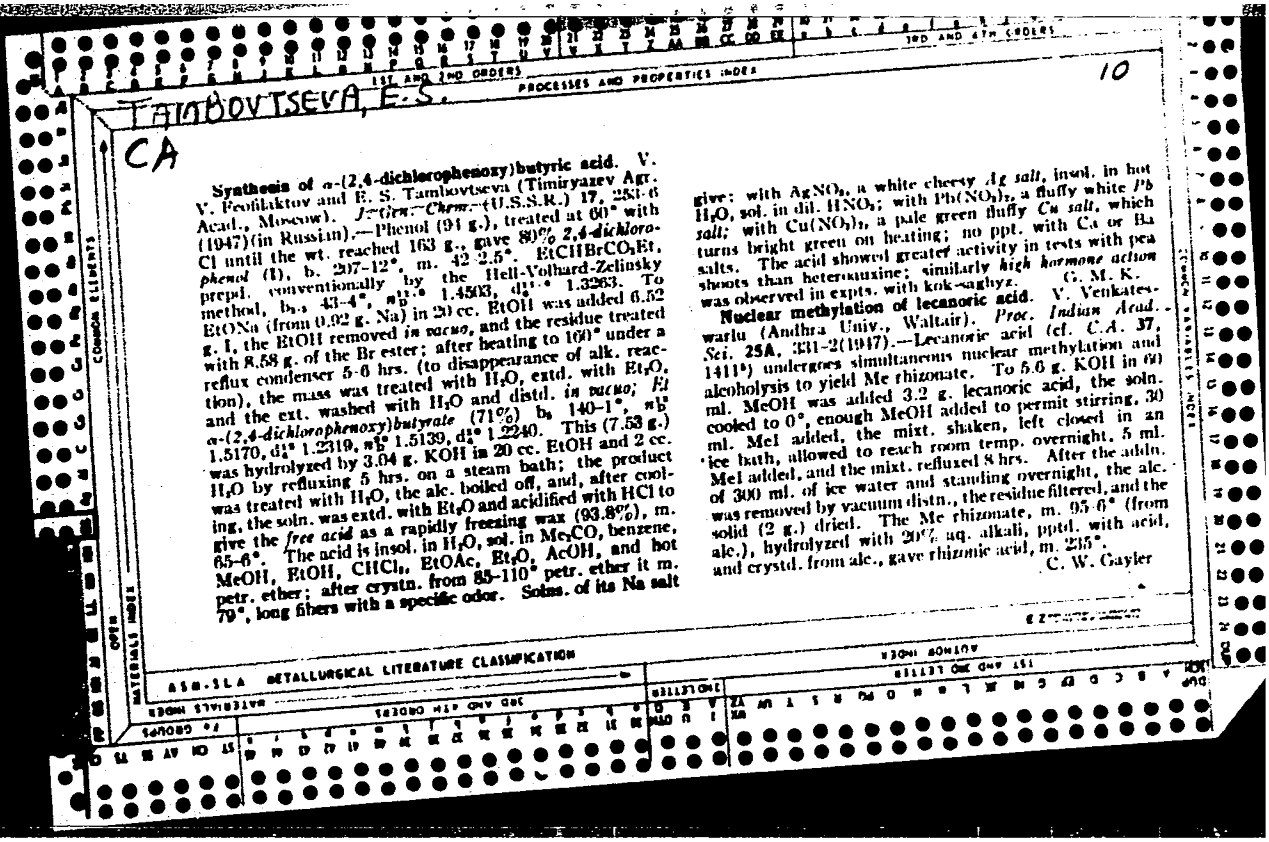
1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
3RD AND 4TH ORDERS
COMMON ELEMENTS
MATERIALS INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TAMBOVTSEVA, E.S.

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CA

Synthesis of α-(2,4-dichlorophenoxy)butyric acid. V. V. Feofilaktov and E. S. Tambovtseva (Timiryazev Agr. Acad., Moscow). *J. Gen. Chem.* (U.S.S.R.) **17**, 281-6 (1947)(in Russian).—Phenol (94 g.), treated at 60° with Cl until the wt. reached 163 g., gave 80% *2,4-dichlorophenol* (I), b. 207-12°, m. 42-2.5°. EtCHBrCO$_2$Et, prepd. conventionally by the Hell-Volhard-Zelinsky method, $b_{5.5}$ 43-4°, $n_D^{11.6}$ 1.4503, $d_4^{11.6}$ 1.3263. To EtONa (from 0.92 g. Na) in 20 cc. EtOH was added 6.52 g. I, the EtOH removed *in vacuo*, and the residue treated with 8.58 g. of the Br ester; after heating to 160° under a reflux condenser 5-6 hrs. (to disappearance of alk. reaction), the mass was treated with H$_2$O, extd. with Et$_2$O, and the ext. washed with H$_2$O and distd. *in vacuo*; *Et α-(2,4-dichlorophenoxy)butyrate* (71%) b_6 140-1°, n_D^{20} 1.5170, d_4^{20} 1.2319, n_D^{20} 1.5139, d_4^{20} 1.2240. This (7.53 g.) was hydrolyzed by 3.04 g. KOH in 20 cc. EtOH and 2 cc. H$_2$O by refluxing 5 hrs. on a steam bath; the product was treated with H$_2$O, the alc. boiled off, and, after cooling, the soln. was extd. with Et$_2$O and acidified with HCl to give the *free acid* as a rapidly freezing wax (93.8%), m. 65-6°. The acid is insol. in H$_2$O, sol. in Me$_2$CO, benzene, MeOH, EtOH, CHCl$_3$, EtOAc, Et$_2$O, AcOH, and hot petr. ether; after crystn. from 85-110° petr. ether it m. 79°, long fibers with a specific odor. Solns. of its Na salt give: with AgNO$_3$, a white cheesy *Ag salt*, insol. in hot H$_2$O, sol. in dil. HNO$_3$; with Pb(NO$_3$)$_2$, a fluffy white *Pb salt*; with Cu(NO$_3$)$_2$, a pale green fluffy *Cu salt*, which turns bright green on heating; no ppt. with Ca or Ba salts. The acid showed greater activity in tests with pea shoots than heteroauxine; similarly *high hormone action* was observed in expts. with kok-saghyz. G. M. K.

Nuclear methylation of lecanoric acid. V. Venkateswarlu (Andhra Univ., Waltair). *Proc. Indian Acad. Sci.* **25A**, 331-2(1947).—Lecanoric acid (cf. *C.A.* **37**, 1411^8) undergoes simultaneous nuclear methylation and alcoholysis to yield Me rhizonate. To 5.6 g. KOH in 60 ml. MeOH was added 3.2 g. lecanoric acid, the soln. cooled to 0°, enough MeOH added to permit stirring, 30 ml. MeI added, the mixt. shaken, left closed in an ice bath, allowed to reach room temp. overnight. 5 ml. MeI added, and the mixt. refluxed 8 hrs. After the addn. of 300 ml. of ice water and standing overnight, the alc. was removed by vacuum distn., the residue filtered, and the solid (2 g.) dried. The Me rhizonate, m. 95-6° (from alc.), hydrolyzed with 20% aq. alkali, pptd. with acid, and crystd. from alc., gave rhizonic acid, m. 235°. C. W. Gayler

TAMBOVTSEVA, E.S

USSR.

✓ The effect of pressure on the reaction of polycondensation of glycine methyl ester. A. M. Polyakova, L. F. Vereshchagin, A. A. Sukharova, and E. S. Tambovtseva. *Bull. Acad. Sci. U.S.S.R.*, Div. Chem. Sci. 1954, 777-81(Engl. translation).—See *C.A.* 48, 9790*i*. H. L. H.

3

TAMBOVTSEVA, E. S.

11

⑤

Effect of pressure on the reaction of polycondensation of glycine methyl ester. A. M. Polyakova, L. F. Vereshchagin, A. A. Sakharova, and E. S. Tambovtseva (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 142-8; cf. *C.A.* 43, 5403*i*.—$H_2NCH_2CO_2Me$ was subjected to polycondensation by heating 6 hrs. under pressure in a vessel provided with sliding pistons; the material remained under pressure a total of 42 hrs. in each expt. The expts. made at 4500 atm. at 50°, 75°, and 130° showed that the pressure definitely increases the rate of polycondensation and its extent; the polymer obtained at 50° had av. mol. wt. 4368, that at 75° 3855, that at 130° 3284, but the yields were, resp., 10.6, 13, and 18.9%. At atm. pressure the products are polypeptides, insol. in H_2O. The products formed under pressure contain 0.7-0.05% MeO groups; detn. of amino N indicates that diketopiperazine rings are not formed and the products are probably linear.

G. M. Kosolapoff

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S/661/61/000/006/035/081
D205/D302

AUTHORS: Polyakova, A. M., Korshak, V. V., Sakharova, A. A. and Tambovtseva, Ye. S.

TITLE: Polymerization of silico-olefines under pressure

SOURCE: Khimiya i prakticheskoye primeneniye kremneorganicheskikh soyedineniy; trudy konferentsii. no. 6: Doklady, diskussii, resheniye. II Vses. konfer. po khimi i prakt. prim. kremneorg. soyed., Len., 1958. Leningrad, Izd-vo AN SSSR, 1961, 163-172

TEXT: The polymerization of more than 100 silico-olefinic monomers has been investigated by the authors and a series of rules was established. The polymerizations were carried out under 6000 atm. (gauge) at 120 - 130°C in the presence of tertiary butyl peroxide. Parallel experiments without pressure were also performed. Alkenyl silanes with double bonds in α-, β-, γ- and ε-positions with respect to the Si atom were investigated. α-alkenylsilanes polymerize into colorless, viscous oils. Using 1% mole of initiator the poly-

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merization coefficient of triethyl vinyl silane equals 18. On introducing substituents into the vinyl group the tendency to polymerize decreases, depending on the structure and nature of the substituents. Regarding the compounds as substituted ehtylenes it can be said that 1,1-disubstituted ethylenes are polymerized easier than the 1,2-disubstituted. The introduction of a phenylic radical creates steric hindrance to polymerization. ß-alkyl silanes polymerize less than the corresponding α-compounds, forming low-molecular oils. In order to verify the theory according to which the Si atom passivates the double bond in polymerization, the polymerizations of $(CH_3)_3CCH=CH_2$ and $(CH_3)_3CCH_2CH=CH_2$ were run parallel to the polymerization of the corresponding silico-olefines. It was found that the α-alkenes polymerize less readily than the silico-olefines, contrary to the theory of the negative influence of the trialkyl silyl group on polymerization. Comparing the polymerization of butadiene or styrene silico-derivatives with that of their unsubstituted analogues it was found that the silico-derivatives polymerize easier, as was the case with olefines. Trialkyl silyl alkadienes with trialkyl substituents in the 1-position polymerize without pressure, giving oil-like polymers. Polymerization under pressure gives solid products. p-Trialkyl silyl styrenes also polymerize without pressure, the application of pressure increasing the molecular weight of the polymer. Copolymerization of p-triethyl silyl styrene with styrene proceeds with or without pressure giving a copolymer with the link ratio 1:2. Polyalkenyl silanes polymerize as a rule into space networks which produce transparent solid polymers. $R_2Si-(CH_2C(CH_3)=CH_2)_2$ is an exception forming one-dimensional polymers. The polymerization of monoalkenyl hydrosilanes of the $R_2R'SiH$ type where $R = CH_3$, C_2H_5, Cl, OC_2H_5; $R' = CH_2CH=CH_2$, $OCH_2CH=CH_2$, $CH_2C-(CH_3)=CH_2$ was studied, using tertiary butyl peroxide and platinized carbon as initiators. Depending on the initiator, various polymers are formed. It was established by infrared spectra that the polymers formed using the tertiary butyl peroxide under pressure (6000 atm.) preserve the Si-H bonds in contrast to those formed on platinized carbon. Comparing the tendency towards polymeri-

Polymerization of silico-... S/661/61/000/006/035/081
D205/D302

zation of analogous compounds of Si, Ge and Sn it was established that the polymerizationability of vinylic compounds of the type $R_3MCH=CH_2$ (where M=Si, Ge and Sn) decreases in the series $CH_2=CHSiR_3 > CH_2=CHGeR_3 > CH_2=CHSnR_3$. K. A. Andrianov (Moscow), D. N. Andreyev (IKhS AN SSSR, Leningrad), A. A. Zhdanov (INEOS AN SSSR, Moscow), P. V. Davydov (Moscow, S. G. Durgar'yan (INKhS AN SSSR, Moscow) and A. I. Dintzes (Moscow) took part in the discussion which followed. Andrianov expressed the opinion that the conclusion of the authors that the Si atom does not passivate the polymerization mechanisms, observed by the authors, between the processes at 6000 atm. and atmospheric pressure, were of the utmost importance and may explain the disagreements between this work and earlier observations to which Andrianov referred. There are 5 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk, SSSR, Moscow (Institute of Elemental Organic Compounds of the Academy of Sciences USSR, Moscow)

Card 4/4

POLYAKOVA, A.M.; KORSHAK, V.V.; TAMBOVTSEVA, Ye.S.

Polymerization under pressure of α-methylstyrenes substituted at the nucleus. Part 7: α -Methylstyrene containing Sn, Pb, and Ge. Vysokom.soed. 3 no.5:662-664 My '61. (MIRA 14:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Styrene) (Tin organic compounds) (Lead organic compounds)
(Germanium organic compounds)

30721

S/020/61/141/003/009/021
B103/B101

15-8170 2209

AUTHORS: Polyakova, A. M., Korshak, V. V., Corresponding Member AS USSR
Vdovin, V. M., and Tambovtseva, Ye. S.

TITLE: Study of the polymerization of cyanogenous organosilicon compounds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 3, 1961, 641-644

TEXT: The polymerizability of cyanogenous alkenyl silane derivatives was studied. These compounds were polymerized (a) under pressure (6000 atm) in the presence of the radical initiators (1) azoisobutyrodinitrile, (2) tert-butyl peroxide, or (3) benzoyl peroxide; (b) at normal pressure with Pt/C or $H_2PtCl_6 \cdot 6H_2O$ as catalysts. It was found that cyano-isopropoxy alkenyl silane derivatives polymerize at comparatively low temperature. Above 120°C these compounds frequently decompose. Only under the conditions of (a) colorless polymers were obtained at 80°C. For the rest, they were yellow to brown. Some of the experiments ended up with explosive polymerization and charring of the products. Most of the products are slightly soluble (Table 1, nos. 1-22). The authors also

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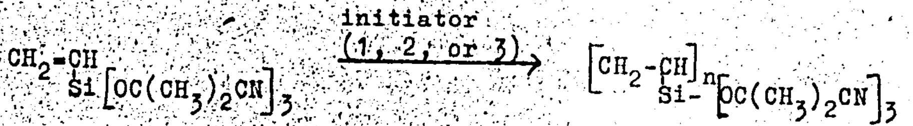
B103/B101

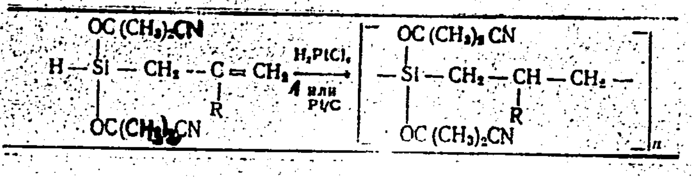
Study of the polymerization ...

studied the interaction of tetraalkyl dihydro-disiloxane derivatives with cyanogenous diallyl silane derivatives, obtaining oily products. Such products had also been obtained previously (V. V. Korshak et al., DAN, 128, 960 (1959)) by treating dialkyl diallyl silane derivatives with the same disiloxanes. The conversion of the monomers (Table 1), which proceeded without explosive polymerization or charring, is illustrated as follows



$$\underset{\mathrm{Si}[\mathrm{OC(CH_3)_2CN}]_3}{\mathrm{CH_2{=}CH}} \xrightarrow[\text{(1, 2, or 3)}]{\text{initiator}} \underset{\mathrm{Si}-[\mathrm{OC(CH_3)_2CN}]_3}{[\mathrm{CH_2{-}CH}]_n} \qquad (1)$$

Polymerization of the cyanogenous dialkenyl compounds probably also occurs at the double bonds, possibly involving the formation of cyclic structures



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30721

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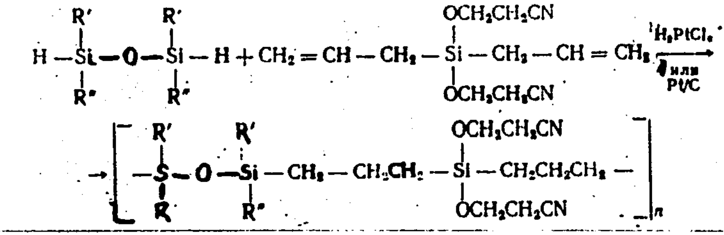
B103/B101

Study of the polymerization ...



$$H-\underset{R''}{\overset{R'}{Si}}-O-\underset{R''}{\overset{R'}{Si}}-H+CH_2=CH-CH_2-\underset{OCH_2CH_2CN}{\overset{OCH_2CH_2CN}{Si}}-CH_2-CH=CH_2\xrightarrow[\text{(1) или Pt/C}]{H_2PtCl_6}$$

$$\rightarrow\left[-\underset{R''}{\overset{R'}{Si}}-O-\underset{R''}{\overset{R'}{Si}}-CH_2-CH_2CH_2-\underset{OCH_2CH_2CN}{\overset{OCH_2CH_2CN}{Si}}-CH_2CH_2CH_2-\right]_n$$

(3) (3);

(1) = or. There are 1 table and 9 references: 7 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: J. C. Williams, R. A. Pike, F. Fekete, Ind. and Eng. Chem., 51, 939 (1959); R. M. Savage, Rubber Age, 84, 975 (1959).

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR). Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

X

Card 3/3

S/032/60/026/009/018/018
B015/B058

19

AUTHOR: Tambovtseva, Z. P., Assistant Manager

TITLE: The Tashkent Exposition of Chemical Reagents and Isotopes

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 9, p. 1164

TEXT: An exposition of chemical reagents and isotopes was arranged in Tashkent from April 15 to 26. It had already been shown by the Gosudarstvennyy Soyuznyy trest "Soyuzreaktiv" (State All-Union Trust "Soyuzreaktiv") in Moscow, Prague, Leningrad, and Sverdlovsk in 1959 on the occasion of the VIII Mendeleyevskiy s"ezd (8th Mendeleyev Congress) and after Tashkent it will be shown in Alma-Ata, Minsk, and Belgrade (Yugoslavia). More than 4000 chemical reagents, preparations, substances of high purity and isotopes of domestic production, as well as products imported from China, Czechoslovakia, Hungary, and other People's Democracies were shown at the exposition in Tashkent. Several types of phosphors were shown besides other things, among them single crystals as well as a Soviet discovery, a crystalline substitute for single crystals, called "popop". When the latter is dissolved in organic liquids,

Card 1/2

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Card 2/2

TAMBULAS, Milos

For equal work unequal receipts. PTT Zajed 5 no.2:40-41 Mr-Ap '63.

TAMBULATOV, B.Ya.

Centralization and specialization of repair work. Mashinostroitel' no.1:22-24 Ja '65. (MIRA 18:3)

TAMBYAN, N.N.

New representatives of the algal flora of Armenia. Izv. AN Arm. SSR. Biol. nauki 12 no.6:81-83 Je '59. (MIRA 12:10)

1. Botanicheskiy institut AN ArmSSR i Kafedra botaniki Yerevanskogo gosuniversiteta.
(Armenia--Algae)

S/064/60/000/03/06/022
B010/B008

AUTHORS: Lidařík, M., Mleziva, I., Beranová, D., Tamchyna, I.

TITLE: Low-molecular Epoxy Resins and Their Use in Technology

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 3, pp. 209-213

TEXT: After an introductory study of the manufacturing methods for epoxy resins, the authors described two new methods for the manufacture of low-molecular epoxy resins. According to the first method, the dichloro hydrin of dioxy-diphenyl propane is obtained in the first process by means of catalysts which are less alkaline than the commonly used NaOH solutions, i.e., with secondary or tertiary amines, sodium acetate, sodium carbonate etc. The second process, the dehydrochlorination, is carried out by the usual method. According to the second manufacturing method, the epoxy group is combined in the presence of alkaline catalysts with the hydroxyl group of phenol. The peculiarity consists in the fact that only a small amount of lye and plenty of NaCl are added. Thus, equilibrium is established whereby the dehydrochlorination is suppressed and the presence of a constant amount of the hydroxide (which acts as catalyst) is ensured.

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Low-molecular Epoxy Resins and Their Use in Technology

S/064/60/000/03/06/022
B010/B008

Both methods have the advantage that the formation of high-molecular products is prevented. Low-molecular epoxy resins are used for the manufacture of laminates, varnishes, fillers etc. Examples of testing low-molecular epoxy resins on glass fiber fabrics (Table 1) with various hardeners (Table 2), of their electrical conductivity (Table 3) and their use as glues (Table 4) are given with explanations. There are 4 figures, 4 tables, and 9 non-Soviet references. ✓

ASSOCIATION: Issledovatel'skiy institut sinteticheskikh smol i lakov, Pardubitse, Chekhoslovakiya (Research Institute of Synthetic Resins and Lacquers, Pardubice, Czechoslovakia)

Card 2/2

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

a-1

[illegible] I. V. TAN-
[illegible] lead [illegible]
[illegible] a [illegible]
[illegible] gives a
[illegible] copper
[illegible] a brown
[illegible] concentrations of lead has
[illegible] a greenish-brown colour.
[illegible] together, the latter
[illegible] whilst
[illegible] lead should be
[illegible] coloured red by the
addition of [illegible] B. Tuszkowski.

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND GROUPS

PROCESSES AND PROPERTIES INDEX

ca

23

Technological wood hydrolysis. J. V. TAMCHYNA AND H. M. FANTO. *Chem. Listy* 24, 105-6(1930).—Wood is dried, pulverized and treated with concd. HCl in vessels made of tar and quartz. Heating of the mixt. is carried out by finely dispersed oil which does not dissolve the sugar or HCl. Sepn. is effected in a centrifuge. The carbohydrate is a tetrose and appears as a dark brown sirup or brown crystals. The excess HCl is neutralized with $CaCO_3$; the $CaCl_2$ is desirable where the tetrose is used as a hog *food*. The carbohydrate yield is 60-70% of the wt. of wood, lignin 30% and AcOH 4%. The lignin is pressed into briquets having a calorific value of 5000 cal. No preference for the variety of wood exists; deciduous and coniferous woods react identically. The feeding expts. have not been tried out; T. recommends a mixt. of tetrose, dried potatoes, and soy-bean flour which appears to be inadequate but should be a good accessory diet for hogs. The process could be carried out in sugar mills in the periods between the sugar crops.

FRANK MARESH

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

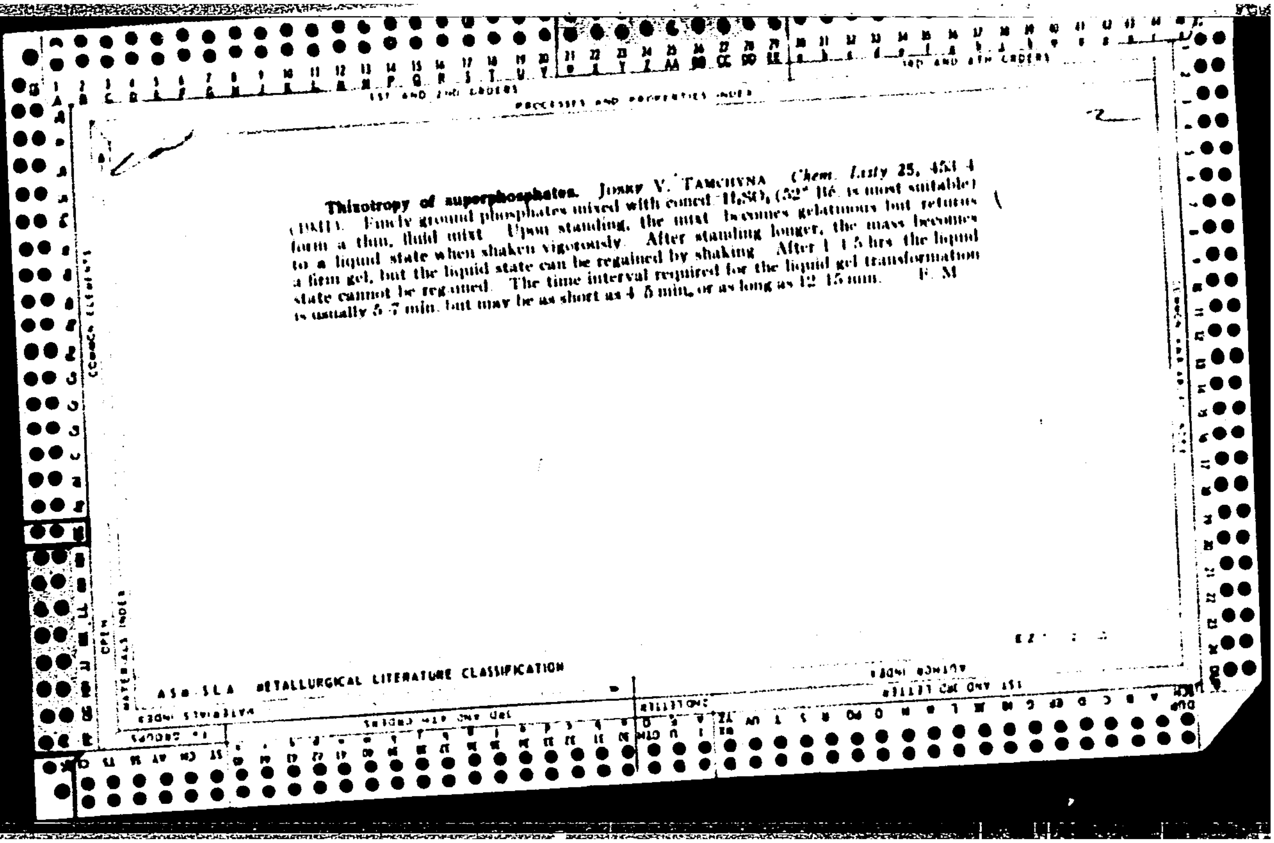
Co

7

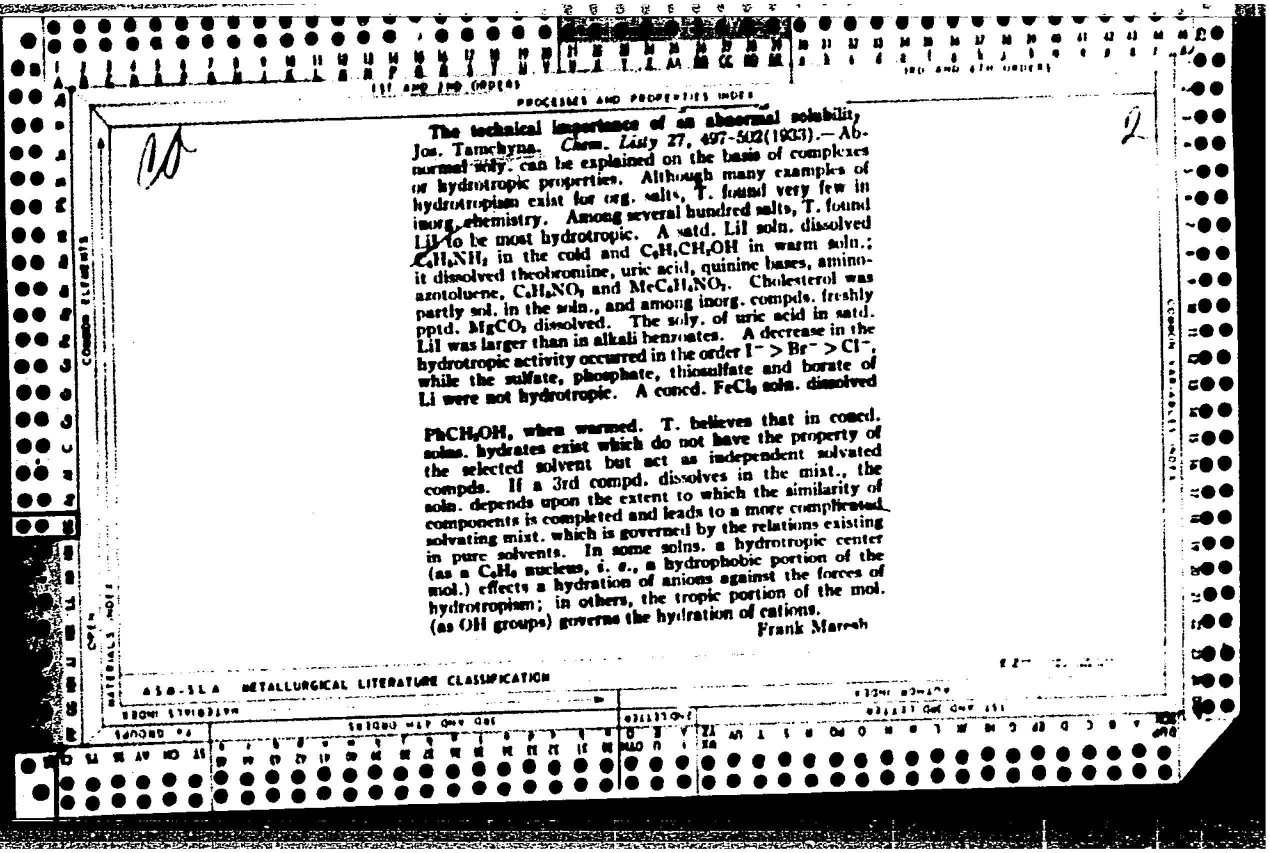
A sensitive test for molybdenum. JOSEF V. TAMCHYNA. *Chem. Listy* **24**, 405-6 (1930).—The test for Mo with K Et xanthate can be made more sensitive by using a deriv. of a higher alc.; the cetyl alc. deriv. is the most sensitive. The soln. is prepd. by mixing a satd. soln. of cetyl alc. in CS_2 with powd. KOH or a satd. alc. soln. of KOH. The unknown neutral soln. is treated with a few drops of cetyl xanthate and made acid with 1.0 *N* HCl. The presence of molybdic acid gives a dark violet color; in extreme dilns. the color adheres to the suspension of cetyl alc. The limit of detection is 0.0005 mg. Mo per cc. and the limit of diln. 1:2,000,000. Mo may be detected in a drop of unknown liquid: filter paper is impregnated with cetyl xanthate, dried, treated with a drop of unknown soln. and exposed to HCl fumes. The limit of detection is 0.0001 mg. Mo per 0.05 cc. The filter paper must be freshly prepd., as it keeps only about 24 hrs. The effect of inorg. salts upon the reaction is insignificant. W gives no color reaction with xanthates; so Mo may be detected in the presence of W. Solns. with a high W content must be made strongly acid to insure a complete soln. of Mo and W. 0.01 mg. Mo in the presence of 0.5 g. W contained in 5 cc. water was detected by the reagent. The limit of diln. which still gave a color was 0.00002 mg. Mo per 0.05 cc. soln.

FRANK MARESH

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION


1ST AND 2ND ORDERS
3RD AND 4TH ORDERS
PROCESSES AND PROPERTIES INDEX
MATERIALS INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
OPEN

Thixotropy of superphosphates. Josef V. Tamchyna. *Chem. Listy* 25, 451-4 (1931). Finely ground phosphates mixed with concd. H_2SO_4 (52° Bé. is most suitable) form a thin, fluid mixt. Upon standing, the mixt. becomes gelatinous but returns to a liquid state when shaken vigorously. After standing longer, the mass becomes a firm gel, but the liquid state can be regained by shaking. After 1-1.5 hrs. the liquid state cannot be regained. The time interval required for the liquid gel transformation is usually 5-7 min. but may be as short as 4-5 min. or as long as 12-15 min. F. M.



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

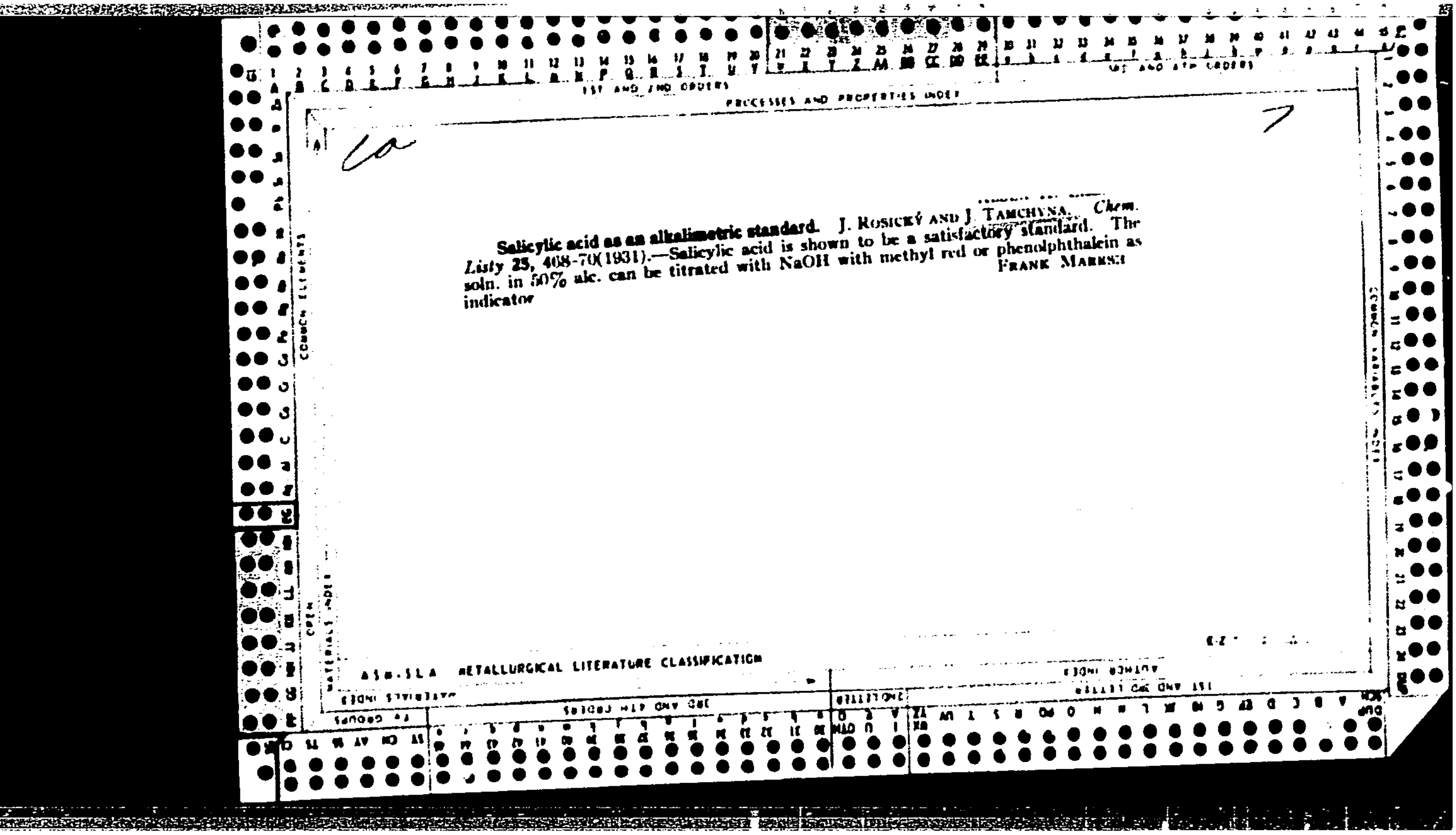
10

2

The technical importance of an abnormal solubilit, Jos. Tamchyna. *Chem. Listy* 27, 497-502(1933).—Abnormal soly. can be explained on the basis of complexes or hydrotropic properties. Although many examples of hydrotropism exist for org. salts, T. found very few in inorg. chemistry. Among several hundred salts, T. found LiI to be most hydrotropic. A satd. LiI soln. dissolved $C_6H_5NH_2$ in the cold and $C_6H_5CH_2OH$ in warm soln.; it dissolved theobromine, uric acid, quinine bases, aminoazotoluene, $C_6H_5NO_2$ and $MeC_6H_4NO_2$. Cholesterol was partly sol. in the soln., and among inorg. compds. freshly pptd. $MgCO_3$ dissolved. The soly. of uric acid in satd. LiI was larger than in alkali benzoates. A decrease in the hydrotropic activity occurred in the order $I^- > Br^- > Cl^-$, while the sulfate, phosphate, thiosulfate and borate of Li were not hydrotropic. A concd. $FeCl_3$ soln. dissolved $PhCH_2OH$, when warmed. T. believes that in concd. solns. hydrates exist which do not have the property of the selected solvent but act as independent solvated compds. If a 3rd compd. dissolves in the mixt., the soln. depends upon the extent to which the similarity of components is completed and leads to a more complicated solvating mixt. which is governed by the relations existing in pure solvents. In some solns. a hydrotropic center (as a C_6H_6 nucleus, *i. e.*, a hydrophobic portion of the mol.) effects a hydration of anions against the forces of hydrotropism; in others, the tropic portion of the mol. (as OH groups) governs the hydration of cations.

Frank Maresh

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
3RD AND 4TH ORDERS
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ca

7

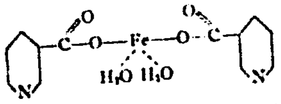
Salicylic acid as an alkalimetric standard. J. Rosický and J. Tamchyna. *Chem. Listy* **25**, 468-70(1931).—Salicylic acid is shown to be a satisfactory standard. The soln. in 50% alc. can be titrated with NaOH with methyl red or phenolphthalein as indicator.

Frank Maresh

17

CA

The complex matter in therapeutics of iron. M. Chylík and J. Tamchyna. *Chem. Zvesti* **4**, 282-8(1950).—Ferroniconate of the possible structural formula:



crystallizes with 2 mol. of H_2O which are lost at 110°. It is very resistant to oxidation and has a very rapid therapeutic effect. The hemoglobin is increased more than with any other Fe therapeutic prepn. if exptl. anemia is developed. It is also very effective if dissolved in tartaric, citric, or ascorbic acid. The solns. are also very resistant to oxidation. Jan Micka

1

TAMCHYNA, J.
I. JEZO, Chem. Zvesti 5, 121-32 (1951)

TAMCHYNA, J.

[illegible]
L. Molnar, Fr. Sehecky, and J. Tamchyna (Vyskumny [illegible] ~~[illegible]~~ Časm [illegible]

olidine deriv. (I) of the type [illegible] (S), were studied on rats by using a new very exact method permitting a large mobility record on a very large no. of [illegible] The analgesic effects by elec. irritations and the anticonvulsive effects were also tested. For therapeutic use the best was 2-thio-5-oxo-4,4-diphenylimidazolidine (II), which was almost nontoxic, without hypnotic effect, and in analgesic effects comparable with aminopyrine. I did not increase fatigue as phenylethylbarbituric acid, but if I were used in larger amts. the agility of animals was increased. From the galenic standpoint II can be mixed with amidopyrine, phenacetin, and caffeine. Jan Micka

TAMCHYNA, J.

CZECH

✓Chemical constitution and physiological effect. Josef Tamchyna. *Chem. Zvesti* 8, 23-49(1954).—Many ex~~amples of the~~ relation between chem. constitution of org. compds. and physiol. effects are discussed. 27 references.

Jan Micka

TAmchyNA, J.

CH Preparation of ester from finely dispersed sodium cyanoacetate. O. Brezina, J. Černý, I. Odler, and J. Tamchyna (Slov. vysoká škola tech., Bratislava, Czech.). *Chem. Zvesti* 8, 76-9(1954).—The effect of H_2O, dispersion, and time in prepn. of $NCCH_2CO_2Me$ from finely dispersed technically pure $NCCH_2CO_2Na$ by evapg. soln. after cyaniding CH_2ClCO_2Na in water-free medium of C_6H_6-MeOH at 20° after adding H_2SO_4 was studied. It was found that the reaction speed is not affected by finely dispersed salt. Maximum yield was obtained in 50 hrs. and the presence of H_2O up to 1% in the reaction medium increased the yield 4%. Dispersion had little effect on esterification yield. Jan Micka

③

Tauchyna, J.

The [illegible]

[illegible]

bromine, m. 251-2°; 8-(α-naphthylmethyl)theophylline, m. 300-1°, 8-(α-naphthylmethyl)caffeine, m. 211°; 8-phenylaminomethyltheoph[illegible] 8-phenyl-[illegible]

TAMCHYNA, JOZEF

str: 4E2c(j)

21

7

Changes of capillary forces in abnormal solubility. Jozef Tamchyna (Slovenská akad. vied, Bratislava, Czech.). Chem. zvesti 10, 553-60(1956)(German summary).—Changes in the interfacial tension of hydrotropic solns. of amyl alc., benzyl alc., and aniline in aq. solns. of Li, Na, K, triethanolamine, diethanolamine, and monoethanolamine salts of BzOH and salicylic acid were studied. The interfacial tension decreases in relation to concn. of sol. salts. The hydration of cations in the hydrotropic binary systems amyl alc.-salts of BzOH or salicylic acid cause a more rapid decrease of the interfacial tension than in the binary system aniline-salts of salicylic acid, which behaves just opposite. The occurrence of the relative decrease in the interfacial tension can be expressed by a simple equation $y = ab^x$ where x is molar concn., y is the relative change of the interfacial tension, and a and b are consts. The opinion is expressed that the reason for the development of the abnormal soly. is the presence of solvatable compds. of hydrotropically active salts in concd. solns Jan Micka

1/1

3

2 May

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TAMCHYNA, J.

JEZO, I.; SELECKY, F.; TAMCHYNA, J. "Hypnotically active triazenes." p. 121 (Chemicke Zvesti, Vol. 5, no. 3/4, March/April, 1951. Bratislava.)

SO: Monthly List of East European Accessions, Vol. 3, no. 6, Library of Congress, June 1954. Uncl.

TAMCHYNA, J.

JEZO, I.; SARPY, N.; TAMCHYNA, J. "Polarographic determination of substituted phenyl methyl ketones." p. 133 (Chemicke Zvesti, Vol. 5, No. 3/4, March/April, 1951. Bratislava.)

SO: Monthly List of East European Accessions, Vol. 3, No. 6, Library of Congress, June 1954, Uncl.

TAMCHYNA, J.

"Coordination of pharmacodynamic research and organic synthesis in the service of pharmaceutical investigation. In German."

p. 209 (Acta Chimica) Vol. 12, no. 2, 1957
Budapest, Hungary

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

TAMCHYNA, J.

H-30

COUNTRY : GDR

CATEGORY : Chemical Technology. Chemical Products and Their Applications--Lacquers. Paints. Coatings.

ABS. JOUR. : RZKhim., No. 16 1959, No. 59232

AUTHOR : Mleziva, J., Hanzlik, V., Hanzlik, M., and Tam-*

INST. : Not given

TITLE : Wire Enamels Based on Epoxy Resins

ORIG. PUB. : Plaste u Kautschuk, 5, No 7, 283-286 (1958)

ABSTRACT : The authors have investigated the effect of various acid curing agents (dibasic acids and their acid low-molecular weight polyesters) on the properties of three-component (containing an epoxy resin, melamine-formaldehyde resin, and the acid curing agent) wire enamels. Tests were run on the mechanical and chemical properties of the enamel films, and it was found that enamels of the composition described are particularly suited for the coating of copper wire of all sizes.

B. Shemyakin

CARD: 1/1 *chyna, J.

TAMCHYNA, J.

CZECHOSLOVAKIA/High Polymer Chemistry. I

Abs Jour: Ref Zhur-Khim., No 8, 1959, 29998.

Author : Bohdanecky, M., Tamchyna, J, and Zvonar, V.
Inst :
Title : The Viscosity of Fused Low Molecular Weight Polycondensates.

Orig Pub: Chem Prumysl, 8, No 7, 382-385 (1958) (in Czech with English and Russian summaries)

Abstract: It has been found that the Vogel equation gives an adequate picture of the temperature dependence of the viscosity of unsaturated polyesters and fused phenol and p-ter-butylphenol. At constant temp log increases linearly with the MW of lacquer resins and varies as the log of the MW of polyesters. Summary by the authors.

Card : 1/1

TAMCHYNA, Jiří

Distr: 4E2c(j)

Melt viscosities of low-molecular-weight polycondensates. Miloslav Bohdanecký, Jiří Tamchyna, and Vladimír Zvonař (Research Inst. Synthetic Resins & Varnishes, Pardubice, Czech.). *Chem. průmysl* 8(33), 382-5(1958).—Novolaks were prepd. by the condensation of *p-tert*-butylphenol and HCHO (molar ratio 1:1) in 1% H_2SO_4 at 100°. After purification by distn. at 200-50° and 1 mm. Hg under N_2 they were fractionated from 10% EtOH with H_2O. Polyesters were prepd. from phthalic and maleic anhydride (molar ratio 1:4) and ethylene glycol by heating under CO_2. The mol. wts. of the novolaks were detd. cryoscopically in dioxane and ebulliometrically in toluene. The mol. wts. of the polyesters were detd. by end-group analysis. The melt viscosity of the novolaks was detd. in an evacuated capillary viscometer with a weighed sample fused in. The melt viscosity of the polyesters was detd. in a Höppler rheoviscometer or a Höppler microplastometer. At const. temp. T, log η was a linear function of the mol. wt. M for the novolaks and a linear function of log M for the polyesters. The dependence on T was expressed by Vogel's equation: $\log \eta = \log B + A/(T - T_0)$. For the novolacs, $B = 1.66 \times 10^{-3}$, $A = 160 + 0.6M$, and $T_0 = 300$. For polyesters, $B = 1.62$, $A = 3761 \log (M/50)$, and $T_0 = 245$. The temp. coeff. cannot be simply related to the activation energy of viscous flow, because it also depends on structural changes, such as H-bond assocn. H. Newcombe

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2-May

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TAMchyNA, J.

CZECHOSLOVAKIA/Organic Chemistry. Organic Synthesis. G-2

Abs Jour : Ref Zhur-Khimiya, No 9, 1959, 31291

Author : Tamchyna, J., Rothova, A.
Inst : -
Title : Some Derivatives of β -Phenylisopropyl-carbamide.

Orig Pub : Chem. zvesti, 1958, 12, No 5, 284-286

Abstract : $C_6H_5CH_2CH(CH_3)NHCONHR$ (Ia to Ie, where a R = H, b R = CH_3, c R = C_2H_5, d R = n-C_4H_9 and e R = C_6H_5) were synthetized by condensing $C_6H_5CH_2CH(CH_3)NH$ (II) with urea (III) or N-substituted III (IV). The mixture of 20 mmoles of II with 24 mmoles of III (or IV) was carefully mixed, heated first at 80°/10 mm for 5 hours and then at 135-140° also for

Card : 1/2

129

TAMCHYNA, J.

TECHNOLOGY

Periodical CHEMICKE ZVESI. Vol. 12, no. 9, Sept. 1958

TAMCHYNA, J.; KOMPIS, I,; MOKRY, J: Deriviatives of N-methylxanthine. II. 8-(p-carboxyphenyl)-theophylline and 8-(p-carboxybenzyl)-theophylline. p. 519

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3, March 1959, Unclassified.

TAMCHYNA, J.; ZEMANIK, J.; DOHNALOVA, V.

Contribution to the knowledge of boxwood alkaloids and their effectivity. Acta r nat Univ Com 3 no.2/3:123-134 '59.
(EEAI 10:5)

(Box) (Alkaloids)

TAMCHYNA, JIŘÍ

15

4

Physical properties of phenolic novolacs. Miloslav Bohdanecký and Jiří Tamchyna (Výzk. ústav synt. pryskyřic a laků, Pardubice, Czech.). *Chem. průmysl* 9, 221-3 (1959); cf. *C.A.* 52, 21226a.—The sp. vol. (V_{sp}) of phenolic (I) and *p-tert* butylphenolic (II) novolacs was found to decrease with increasing mol. wt. (M) to a limiting value: $V_{sp} = \alpha + \beta/M$ where, for I and II, $\alpha = 0.767$ and 0.985, resp., and $\beta = 17.8$ and 40.0, resp. From this the vol. dilatation coeff. (δ) was calcd. for I: $\delta = -(4.6 \times 10^{-4} + 0.459/M)$. From the dependence of the molar vol. (V_{mol}) on M, the value of V_{mol} of the chain unit was found greater for the end units (89.9 and 178, resp.) than for the inner units (81.1 and 159.6, resp.), the increase of V_{sp} with decreasing M being attributed to the disturbing effect of end arrangement of macromols. The dependence of the softening points (T_m) of I and II is expressed by $1/(T_m - T_0) = \alpha_1 + C_1/M$; for I and II, $T_0 = 300$ and 340; $\alpha_1 = 4.6 \times 10^{-3}$ and 3.42×10^{-3} γ; $C_1 = 45.6$ and 11.0. J. Šebenda

M+

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TAMCHYNA, J.

Distr: 4E2c(j) 15

7
1-JAJ(NB)
1

✓Low-molecular-weight epoxy resins and their use in technology. M. Lidařík, J. Mleziva, D. Beranová, and J. Tamchyna. (Výzkumný Ústav syntetických pryskyřic a laků, Pardubice, Czechoslovakia). *Khim. Prom.* 1960, No. 8, 209-13.—Prepn. and use of one type of epoxy resin (I), which is the reaction product of 2,2-bis(*p*-hydroxyphenyl)propane (II) and epichlorohydrin (III) or dichlorohydrin (IV), is discussed. The reaction is carried out in 2 stages: (I) II reacts with III or IV and forms a corresponding ether. (2) The ether is dehydrochlorinated by a known method. Weaker bases than NaOH, e.g. secondary and tertiary amines and salts of weak acids with strong bases are suitable catalysts for the reaction. The I, prepd. in a 5 cu. m. app., has an epoxy no. 0.52-0.54 g. equiv./100 g. and viscosity at 20° about 200 poises. The yield is approx. 95%. The I was cured with conventional hardening agents at 80-150° and mainly used in glass-fabric-reinforced laminate production. Some characteristic mech. and insulating properties including mech. properties of welds are given in relation to mol. wt. (850, 600, 400) of I and to the applied hardener.

V. Škubalková

17K

SOURCE CODE: CZ/0009/66/000/007/0414/0420

ACC NR: AP6031836 (A)

AUTHOR: Lidarik, Miloslav; Stary, Stanislav; Tamchyna, Jiri

ORG: Research Institute for Synthetic Resins and Lacquers, Pardubice (Vyzkumny ustav syntetichkych pryskyric a laku)

TITLE: Ion exchange polymerization catalysts for manufacturing epoxy resins

SOURCE: Chemicky prumysl, no. 7, 1966, 414-420

TOPIC TAGS: catalytic polymerization, ion, epoxide, epoxy resin, ion exchange

ABSTRACT: This article discusses the practical uses of ion exchange polymerization
catalysts for the manufacture of epoxy resins and is a supplement to and a continuati
in depth of a treatment of the subject which appeared in previous publications. The
results obtained so far from the investigation of the ion exchange polymerization of
epoxy resins carried out at the Research Institute for Synthetic Resins and Lacquers
Pardubice are surveyed, and it is pointed out that the overall increased importance o
epoxy resins, in particular their increased applications in the electrical industry,
is due to the possibility of hardening them by ionization polymerization. They are
suitable for use in cast resins, in insoluble lacquers, impregnation resins, in glue

UDC: 66.095.264; 679.576; 679.5:621.3

Card 1/2

ACC NR: AP6031836

in surfaces toatings, etc. The development of catalysts for this type of hardening has still not been completed, but the progress made so far in improving the qualities of epoxy resins indicates that there is real hope for further improvement. Orig. art. has: 1 figure and 20 tables.

SUB CODE: 07, 11/ SUBM DATE: none/ ORIG REF: 004/ SOV REF: 002/ OTH REF: 003

Card 2/2

ACC NR: AP6031836 (A) SOURCE CODE: CZ/0009/66/000/007/0414/0420

AUTHOR: Lidarik, Miloslav; Stary, Stanislav; Tamchyna, Jiri

ORG: Research Institute for Synthetic Resins and Lacquers, Pardubice (Vyzkumny ustav syntetichkych pryskyric a laku)

TITLE: Ion exchange polymerization catalysts for manufacturing epoxy resins

SOURCE: Chemicky prumysl, no. 7, 1966, 414-420

TOPIC TAGS: catalytic polymerization, ion, epoxide, epoxy resin, ION EXCHANGE

ABSTRACT: This article discusses the practical uses of ion exchange polymerization catalysts for the manufacture of epoxy resins and is a supplement to and a continuation in depth of a treatment of the subject which appeared in previous publications. The results obtained so far from the investigation of the ion exchange polymerization of epoxy resins carried out at the Research Institute for Synthetic Resins and Lacquers at Pardubice are surveyed, and it is pointed out that the overall increased importance of epoxy resins, in particular their increased applications in the electrical industry, is due to the possibility of hardening them by ionization polymerization. They are suitable for use in cast resins, in insoluble lacquers, impregnation resins, in glues,

Card 1/2 UDC: 66.095.264; 679.576; 679.5:621.3

ACC NR: AP6031836

in surfaces toatings, etc. The development of catalysts for this type of hardening has still not been completed, but the progress made so far in improving the qualities of epoxy resins indicates that there is real hope for further improvement. Orig. art. has: 1 figure and 20 tables.

SUB CODE: 07, 11/ SUBM DATE: none/ ORIG REF: 004/ SOV REF: 002/ OTH REF: 003

Card 2/2

L 45754-66 EWP(t)/ETI IJP(c) JD

ACC NR: AP6033963

SOURCE CODE: HU/0014/65/098/007/0324/0326

AUTHOR: Laszlop, Jozsef; Tamcsa, Margit

ORG: none

30
B

TITLE: Potentiometric determination of copper and aluminum in non-ferrous alloys [This paper was presented at the 3rd Materials Testing Days held in Balatonszeplak from 26 to 28 May 1964.]

11

SOURCE: Kohaszati lapok, v. 98, no. 7, 1965, 324-326

TOPIC TAGS: copper, aluminum, metal chemical analysis

ABSTRACT: Methods for the determination of copper and aluminum in non-ferrous alloys by potentiometric titration were developed. For the determination of aluminum, a platinum indication-saturated calomel electrode system was employed; for the determination of copper, a titration method involving salicyl aldoxime was employed. Both determinations can be accomplished without the need of calibration curves and both methods are fast. Some examples were presented to illustrate the techniques involved and the accuracy of the techniques. Orig. art. has: 2 figures and 4 tables. [JPRS: 32,491]

SUB CODE: 11 / SUBM DATE: none

Card 1/1

UDC: 669.218.545.1:669.3.71

TAMCSU, Jozsef

Effect of government purchase prices on the profitability of vegetable growing. Pecsi musz szeml 10 no.1:12-15 Ja-Mr '65.

ACC NR: AR7004093 (N) SOURCE CODE: UR/0169/66/000/012/V006/V007

AUTHOR: Tomchak, G. -- Tamczak, G.

TITLE: Preliminary data on the network of wavemeters along the German shore

SOURCE: Ref. zh. Geofizika, Abs. 12V40

REF SOURCE: Sb. 2-y Mezhdunar. okeanogr. kongress, 1966. Tezisy dokl. M., Nauka, 1966, 374-375

TOPIC TAGS: wavemeter network, hydrographic survey, wavemeter/Wellenpegel wavemeter

ABSTRACT: The development of the "Wellenpegel" wavemeter at the German Hydrographic Institute was based on the principle developed by the Ducth engineer hydraulician Wemelfelder. The wavemeter is mounted on a fixed pile for recording the movement of a float freely floating on a wave. The wavemeter will operate without inspection for 2—3 months (150—200 recordings of waves, each recording lasting 2 min. The recording covers the mean or notable weights of the waves, their phase and their maximums. The dependence of the wave height and phase at this point of the sea on the direction and wind intensity (by neighboring

Card 1/2 UDC: 551.46.086

ACC NR: AR7004093

stations or weather maps) can be indicated under conditions where the wavemeter operates at one place in the sea over a period of 1—2 years. A review is given of the presently existing network of stations along the German shore of the North Sea and their centers. A network of five stations has been established in the western part of the Baltic Sea. The stations on the North Sea are divided as follows: a) deep water stations (14—38 m) located far off in the open sea, and b) the stations located in the vicinity of estuaries of rivers or in the areas of markedly high tides. These stations record undistorted waves only when winds blow from a sea or in the presence of especially high level waves. Author's summary. [Translation of abstract]

[NT]

SUB CODE: 08/

Card 2/2

TAMEKE, Jaroslav, inz.

Wideband low-frequency phase-difference networks. Sdel tech 10 no.1:17-21 Ja '62

82768

9,4310

Z/014/60/000/008/002/002

AUTHOR: Tamele, Jaroslav, Engineer

TITLE: Simple UHF Modulators. 8

PERIODICAL: Sdělovací technika, 1960, No. 8, pp. 292-294

TEXT: The article describes a differential and a silicon-diode 35 frequency modulator suitable for small portable and mobile UHF transmitters with test and measuring equipment using frequencies up to 120-140 Mc. Both modulators are of very simple design, they have small non-linear distortion (maximum 0.5%), large frequency deviation (linearily 100 Kc), small parasitic amplitude modulation and are very reliable. 25 The differential modulator employs two reactance tubes in differential connection (Fig. 1). The modulator is connected to a nonsymmetrical oscillator. The modulating tubes (E_1 and E_2) are inphase-opposed r.f. excited from the opposite ends of the grid circuit (L_mC_m) through the coupling capacitors (C_{g1}, C_{g2}). The r.f. voltage is fed to this circuit by the phase-shifting element (R_dC_d) through the capacitor (C_v). This voltage has a lead of $\pi/2$ from the voltage on the tube anodes. The anode amperage of the two tubes has therefore also a shift of $\pi/2$ against the anode voltage

Card 1/6

82768

Simple UHF Modulators Z/014/60/000/008/002/002

and the tubes are functioning as assumed reactance, the tube E_1 due to inductance, the tube E_2 due to capacitance (Fig. 2). In case the modulator is symmetrical, both anode reactance amperages have the same value, but opposite polarity, the resulting quiescent reactance is zero. The transconductance changes when a symmetrical modulation voltage is applied to the grids of the modulation tubes. The anode amperages are then unequal and the compensating differential amperage causes a change of the assumed modulator reactance and actuates the frequency modulation of the attached oscillator. The exact modulator symmetry can be adjusted by tuning the grid circuit. The d-c symmetry of the modulator is adjusted by the potentiometers (R_k) connected to the tube cathodes. Transconducting pentodes "6F32", "EF80", etc., can be used as modulating tubes. The grid circuit ($L_m C_m$) has an important effect on the instrument characteristics and should be tuned to minimum distortion. The modulator described is continuously tunable within the range of 45 to 110 Mc. The full wiring of the oscillator and the modulator is given in Fig. 3. The oscillator consists of a "PC86" tube and has a grounded grid. The frequency range was adjusted by tuning with the barrel variometer (L_4) in concurrence with the modulator grid variometer (L_3). The FM output voltage is delivered by the

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oscillator cathode. The modulation voltage is fed to the grids through r.f. separating filters. All electrodes, which should be grounded in view of the r.f., are blocked by bushing capacitors. The capacitance (C_7) has a split stator and grounded rotor and serves the modulator grid-circuit tuning for suppressing the second harmonic distortion to a minimum. The a.f. grounding of the screen grids is provided by the capacitors (C_{11}) and (C_{12}). The resistors (R_8) and (R_9) are chokes for damping parasitic oscillations. The grid circuit of the capacitor (C_7) must be individually tuned for each carrier frequency. A distortion meter and an oscilloscope are most suitable for distortion measuring. The properly adjusted unit has the following specifications: frequency range = 40-120 Mc; output voltage = approximately 3v; rated frequency deviation = 100 Kc; non-linear distortion = smaller than 0.3% parasitic amplitude modulation = smaller than 2%; modulation voltage = smaller than 2 x 0.6v; modulation frequency range = 30 cps-200 Kc. The transconductance course of the static modulation characteristics is shown in Fig. 4. Direct measuring of modulation-characteristic deviation (Fig. 5) was employed to obtain precise data plotted in Fig. 4. Curve (a) represents the transconductance course at a carrier frequency of 50 Mc with improperly tuned grid circuit, curves

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(b and c) represent carrier frequencies of 50 and 100 Mc with proper semiconductor-modulator adjustment (only third harmonic distortion). The silicon-diode modulator (Fig. 6) has a more simple design, but properties comparable to those of the differential modulator. The modulation element consists of a semiconductor junction diode connected with a tuned oscillator circuit through the coupling condenser (C_2). The diode is closed by the bias (U_s), which is adjustable by the potentiometer (R_2). The nonsymmetrical modulation voltage is fed to the diode through the working resistance (R_3). The modulator function is a combination of two common methods of frequency modulation with the aid of semiconductor diodes. The first method employays the voltage-dependence of the p-n transition capacitance of a closed semiconductor junction diode. The second method employs the voltage-dependent impedance of an open diode for connecting the capacitance (C_2) to the oscillator, in dependence of the modulation voltage. The prevailance of either method is determined by the magnitude of the bias. The second harmonic distortion can be suppressed by adjusting the Q point of the modulator close to the inflection point within the linear part of the modulation characteristic. The modulator could be equipped with arbitrary semiconductor junction diodes, but silicon diodes are most

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advantageous in view of the temperature stability of the carrier frequency. The test modulator described is equipped with a Soviet "D203" silicon diode. The transconductance course of the static modulation characteristic at a carrier frequency of 50 Mc and a modulation voltage of 100 mv is shown in Fig. 7. The characteristic has practically linear shape at a bias of 5 v. The course of the second harmonic distortion in dependence of the bias at 50 Mc (line a) and 100 Mc (line b) is plotted in Fig. 8. The distortion is nearly zero at certain optimum bias values (U_s optimum for 50 Mc = 5.6v). The coupling capacitance (C_2) has also a great effect on the modulator functions. The course of the third harmonic distortion in dependence of the capacitance (C_2) at a frequency deviation of 100 Kc is shown in Fig. 9. The test modulator, as shown in Fig. 6, has the following specifications: frequency range = 45-140 Mc; output voltage = 4v; nominal frequency deviation = 100 Kc; non-linear distortion = smaller than 0.2%; parasitic amplitude modulation = smaller than 10%; modulation voltage = 1.5v at 50 Mc, 0.4v at 100 Mc. As compared with the differential modulator, the silicon-diode modulator has several advantages and disadvantages. Advantages are: the simple design and the smaller number of component parts, which make the silicon-diode modulator especially

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suitable for transistorized circuits; the second and third harmonic distortion is also smaller and the adjustment of the Q-point with the aid of the d-c bias is more convenient than the tuning of the grid circuit. Disadvantages of the silicon-diode modulator are: larger oscillator attenuation at higher frequencies, the great effect of the bias on the oscillator carrier frequency, larger parasitic amplitude modulation, changes in the modulation sensitivity within the frequency range and rather large differences in the qualities of individual diodes. However, most of these disadvantages can be eliminated by suitable arrangement, especially by choosing the proper coupling capacitor. There are 9 figures.

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